



County of San Diego Strategic Energy Plan 2013-2015

Progress Report for FY 2013-14

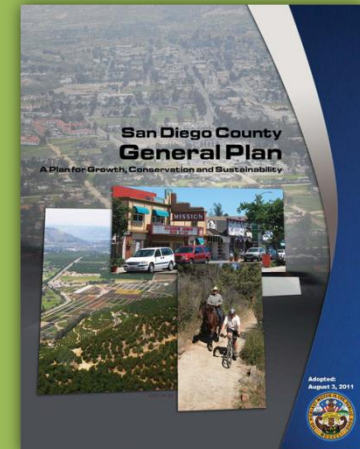


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Purpose

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The County of San Diego Strategic Energy Plan has two distinct components:

The **County Operations Energy Strategy** includes County-owned facilities, leased facilities, and the County's vehicle fleet. The main objectives are to lower operational costs, reduce energy and water consumption and minimize greenhouse gas emissions.



The **County Community Energy Strategy** includes program development and management for the unincorporated areas within the county and for coordination with federal, state and local entities. The County Community Energy Strategy has a regional focus with specific emphasis on the unincorporated area where the County has land use jurisdiction. The main objectives are to reduce energy and water consumption, minimize greenhouse gas emissions for healthier and more sustainable communities.

Strategic Energy Plan Progress Reporting

The Energy & Sustainability Team (comprised of staff representing each participating department) has identified and/or implemented specific actions based on the 2013-2015 Strategic Energy Plan priorities and goals to meet or exceed objectives.



This Strategic Energy Plan progress report includes the status of each energy strategy area, significant accomplishments achieved during the past fiscal year (July 2013 through June 2014), and the status of projects in progress that are expected to complete by June 2015. This progress report will also be placed on the County of San Diego website.

Operational Achievements



The following efforts completed during Fiscal Year 2013-2014:

[Contents](#) * [Operational Achievements](#) * [Community Achievements](#) * [Projects Underway](#)

Energy and Water Efficiency and Utilization

Reviewed all capital improvement and major maintenance projects for opportunities to reduce energy/water consumption and related costs, minimize greenhouse gas emissions and promote sustainability practices in County operations.

Completed 8 projects to modernize lighting fixtures, replace lamps and light bulbs in County facilities. The expected annual savings for these projects is 973,000 kWh or enough energy to power about 90 average homes. The County received \$656,000 in zero interest loans from SDG&E to fund these projects.



Energy and Water Efficiency and Utilization

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Finalized retro-commissioning (a process for identifying where a facility's equipment, lighting and control systems can be improved and making the necessary adjustments) at the East Mesa Detention Facility, North County Regional Center, and Health Services Complex. The expected **annual energy savings** for these facilities is 1,678,000 kWh or **enough energy to power about 157 average homes**. The County received \$383,000 in incentives and grants and \$807,000 dollars in zero interest loans to fund these projects.

Finished outdoor energy efficient lighting retrofits at Heise Park and Live Oak Park, a lighting control system at 4S Ranch Park and solar parking lot lights at Heise Park.

Energy and Water Efficiency and Utilization

Put in **efficient sink fixtures, toilet flush valves, and shower heads** at Vista Detention Facility. The new equipment is expected to save approximately **21 million gallons of water annually** or about 42% of the total water consumption at that facility. That's enough water to supply about **128 average households**. The savings will pay for the project costs in less than 3 years.

Installed **high efficiency irrigation heads and smart irrigation controllers** at six County parks. The improvements not only **reduced irrigation use** by over 30%, but also **reduced time devoted** to irrigation **maintenance**. The retrofits were successful at Hilton Head Park, Clemmens Lane Park, Rainbow Park, Lindo Lake Park, Live Oak Park and Felicita Park.

Replaced **natural turf** on four permanent Little League baseball fields and one full size soccer field with **water-saving synthetic turf** at 4S Ranch Sports Park, and old plumbing fixtures and equipment were replaced at Felicita Park and Live Oak Park with efficient toilets and faucets and waterless urinals.



Energy and Water Efficiency and Utilization

Through the completion of the County's energy efficiency improvement efforts, the estimated annual ongoing savings is:



2,651,000 kWh of electricity or enough energy to power 248 average homes.



80,800 therms of natural gas or enough gas to supply 221 average homes.

Green Design and Construction for New Facilities

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Achieved Leadership in Energy & Environmental Design or LEED Certification for the following new buildings:



Registrar of Voters



East Mesa Detention Facility Addition

LEED practices help to:

- Divert construction and demolition debris away from landfills
- Reduce energy and water consumption
- Encourage the use of environmentally friendly materials and products



Rancho San Diego Sheriff Station



Las Colinas Women's Detention Facility

Green Design and Construction for New Facilities

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Participated in “**Savings By Design**”, a program for non-residential, new construction, energy efficiency projects (sponsored by the California Public Utilities Commission and administered by SDG&E) which promotes the use of innovative energy building design features.

The County received \$197,000 in rebates from four buildings which was placed into a trust fund to develop, design and/or fund new energy-related projects.



East Mesa Detention Facility Addition



Registrar of Voters



Rancho San Diego Sheriff Station



Las Colinas Detention Facility

Green Design and Construction for New Facilities

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Approved the County's first Zero Net Energy building to begin design and construction. The new Alpine Library is expected to be complete in 2016.



What is a Zero Net Energy Facility?

A facility where energy production is equal to energy consumption.

Zero Net Energy Facilities:

- **Reduce operating costs and consumption** with more efficient equipment, decreasing the total cost of ownership.
- Reduce environmental impact by **reducing energy usage** and the carbon footprint.
- **Minimize dependence on the electricity grid** through the use of energy-efficient technologies.
- Integrate with the County of San Diego Strategic Plan initiatives, “Safe, Healthy and Thriving” as well as *Live Well San Diego*. **Providing healthy workplaces promotes productivity and reduces absence.**

The County operates essential facilities and infrastructure that must have a **dependable, secure source of electric energy** as well as **reliable and reasonable pricing** for that energy.



Participated in a program for the procurement of electric energy called Direct Access and realized a significant savings. During FY 2013-2014 the County avoided approximately \$1,440,000 or about 10% of the total annual County cost for electricity when compared to what costs would have been if the County purchased electricity directly from SDG&E.

Distributed Generation System Deployment

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Installed new solar photovoltaic systems at Agua Caliente Park and Sweetwater Summit Park. The renewable solar panels are expected to help **offset the demand for energy used** at those facilities.



Sweetwater Summit Solar PV Array

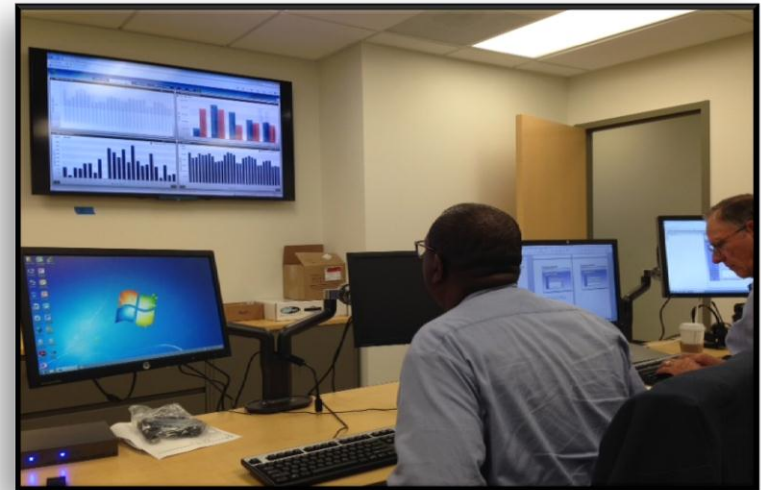


Agua Caliente Solar PV Array

Smart Building/Smart Grid Technology Deployment

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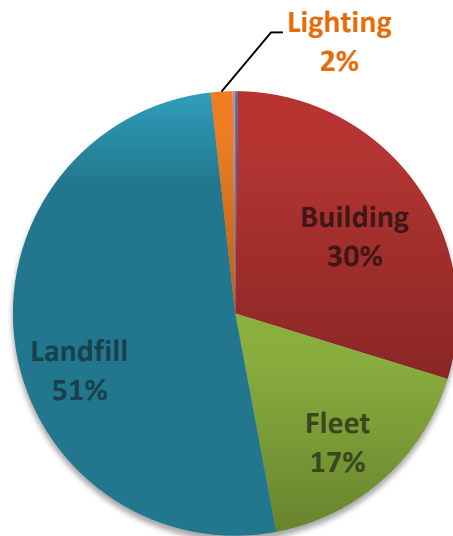
Deployed a centralized County-networked Building Automation System (also referred to as a “Smart Building”) which provides **an innovative way to control, monitor and report** on various building mechanical and utility systems (air conditioning, heating, lighting, water meters, distributed generation, etc...). This technology allows the County to use **data analytics and manage energy demand from a central point**. It was installed at the South Bay Regional Center, Southeast Family Resource Center, El Cajon Family Resource Center and Lincoln Acres Library. South Bay Regional Center had an 11% **energy savings** over the last year.



Monitoring and Reporting

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County of San Diego 2013 Emissions



*Total Emissions = 145,000 Metric Tons
CO₂e (equivalent), down 12% from 2012*

Reduced greenhouse gas (GHG) emissions generated from operations by 20,227 CO₂e (carbon dioxide equivalent) or 12%, which (according to the EPA) equates to taking 4,258 passenger vehicles off the road. Annual results were reported to The Climate Registry.

Monitoring and Reporting

17



Recognized for participating in SDG&E's Cool Planet Project for **implementing energy efficiency upgrades** throughout County operations that **resulted in significant energy savings and carbon reduction**. The County was awarded \$15,000 to be used for one year of membership with The Climate Registry and funding for third-party verification of Green House Gas inventory.

Vehicle Fleet Fuel Efficiency and Utilization

Recognized by Government Fleet Magazine as the #4 most leading Fleet in the nation. The award acknowledged **“Operations that are performing at a high level, particularly in fleet leadership, competitiveness and efficiency, planning for the future, and overcoming challenges.”** This marks Fleet’s second Top 20 award by Government Fleet Magazine in two years. Part of the recognition was due to sustainability practices.

Completed a Green Fleet Action plan that contains recommendations to reduce Greenhouse Gas emissions from fleet vehicles from FY 2013 through FY 2020.

Improved fuel efficiency (average miles per gallon) by over 5%.



Communication and Training

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Received two Institute for Local Government Beacon awards for local leadership towards solving climate change:

- Gold Beacon Spotlight Award for Sustainability Best Practice Activities for implementing 20 Sustainability Best Practices in 10 different areas.
- Gold Beacon Spotlight Award for Energy Savings at Facilities for reducing electricity and natural gas use in agency buildings by over 10 percent.



Updated County policy to **ensure that items purchased** for use in County facilities meet current **California Energy Commission appliance efficiency regulations**: www.energy.ca.gov/appliances.



Waste Reduction and Recycling

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Worm Wigwam vermicomposting unit



Implemented a **demonstration composting project** at the East Mesa Detention Center. The **Worm Wigwam vermicomposting unit** processes vegetative food scraps generated from the facility. A **training program** was provided for staff and inmates **highlighting composting, vermiculture, sustainable resource management, compost and mulch utilization.**

The program is beginning to **divert hundreds of pounds a week from waste disposal to composting.**

Received the Director's Recycling Award from the City of San Diego. The award recognizes **organizations that demonstrate environmental leadership** through programs that result in **significant waste reduction, recycling and economic benefits.** Highlights include waste diversion practices, recycling and waste collection system, materials recycled and purchasing environmental preferable products.



Community Achievements



The following efforts completed during Fiscal Year 2013-2014:

[Contents](#) * [Operational Achievements](#) * [Community Achievements](#) * [Projects Underway](#)

Regional Collaboration

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Collaborated through the San Diego Regional Energy Partnership. **Efforts to support deep energy retrofits in existing residential buildings continued with other San Diego regional local government partners** including the Cities of San Diego and Chula Vista, the Port of San Diego, University of San Diego and the San Diego Association of Governments (SANDAG).



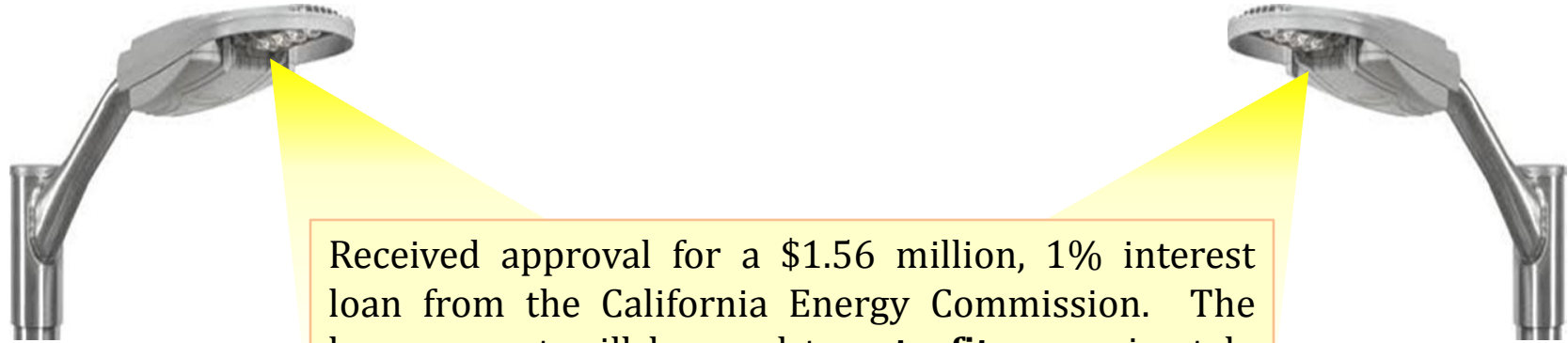
Supported the expansion of the San Diego Regional Climate Collaborative (SDRCC), attended monthly steering committee meetings and quarterly networking meetings. The [Climate Collaborative](#) is a network for public agencies to **share expertise, leverage resources, and advance comprehensive solutions to facilitate climate change planning.**

Regional Collaboration

Participated and supported the Retrofit Advisory Council (RAC), a regional stakeholder group with a **vision of a sustainable market for energy upgrades in San Diego**. The RAC collaborated on creation of a regional [financing guide](#) to inform stakeholders about **financing options available to support home upgrades**. Committee meetings addressed financing development, marketing home energy upgrades, and local government policy and research.



Reduce Energy Consumption



Received approval for a \$1.56 million, 1% interest loan from the California Energy Commission. The loan amount will be used to **retrofit** approximately 2,000 of the 6,500 **County-owned and operated streetlights with LED fixtures**. The retrofits are **energy efficient** and **reduce greenhouse gas emissions**. These fixtures are capable of remote monitoring to detect failures. They are **expected to save approximately \$200,000 per year in energy costs**.

Reduce Energy Consumption

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Continued with the **Green Building Incentive Program** that promotes the **use of resource-efficient construction materials, water conservation and energy efficiency** in new and remodeled residential and commercial buildings. **The program offers incentives of reduced plan check turnaround time** and a 7.5 percent reduction in plan check and building permit fees for projects meeting program requirements. In 2013, the County permitted 13 projects that used the program.



Initiated the **development of a form-based code** for the Valley Center South Village, which will include energy efficiency requirements.



Initiated a training program to prepare for and **implement the 2013 California Building Energy Efficiency Standards**, which became effective July 1, 2014.

Distributed Generation

Began online permitting for residential roof-mounted solar PV projects that do not require a meter upgrade – 70% of all PV permits are now processed online.



Continued to offer building permit fee waivers for residential solar PV electrical system permits (since 2001) and residential small wind turbine electrical system permits (since 2008).

Transportation and Land Use

28

Provided grant funding through the Lower Emission School Bus Program to local school districts for purchase of compressed natural gas (CNG)-fueled school buses and to upgrade CNG tanks on existing school buses.



Participated in the San Diego Regional Electric Vehicle Infrastructure Working Group, led by SANDAG in partnership with the California Center for Sustainable Energy. The group **developed a [Plug-in Electric Vehicle \(PEV\) Readiness Plan](#) to further PEV adoption in the San Diego Region.**



Updated the [off-street parking regulations and design manual](#) to be consistent with contemporary design requirements; address a broader range of land uses; provide flexible, shared or reduced parking requirements for various land use types; incorporate standards for EV parking.



Awarded \$3.2M in Carl Moyer Program funds for 50 projects to help offset incremental costs of cleaner-than-required engines in on-road, off-road, agricultural, marine, and locomotive equipment.



Education and Outreach

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Hosted an Earth Day celebration at the County Operations Center. The County partnered with the [Industrial Environmental Association](#) for an event that focused on the five R's, "to **refuse** to buy poorly packaged products, to **reuse**, to **recycle**, to **renew** and to **repurpose**". Many County departments, local businesses and non-profits were on hand to show what they're doing to help the environment. Employees and members of the public dropped off used batteries and compact fluorescent light bulbs for recycling and learned about ways to make the county a more sustainable place.



Continued the Discovery Kit Environmental Educational Program. This award-winning program **sends up to 20,000 elementary school children on an outdoor environmental education adventure** at Louis Stelzer County Park in Lakeside and at Dos Picos County Park in Ramona.

The program gave students and teachers opportunities to explore the wealth of nature in their own backyards. The hands-on course includes pre-field trip activities for classroom use, field trip activities for use in the park, and post-field trip activities for classroom and home use. The curriculum is correlated with the California Science Framework and includes information on fire ecology and the Multiple Species Conservation Program.

Recycling

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Collaborated with industry and jurisdictional partners on the [San Diego Reuse and Repair Network](#) to promote organizations and industries that sell and/or repair used materials (such as building materials, furniture and household goods). A [database of repair organizations](#) was completed in 2013.



This  to this. 

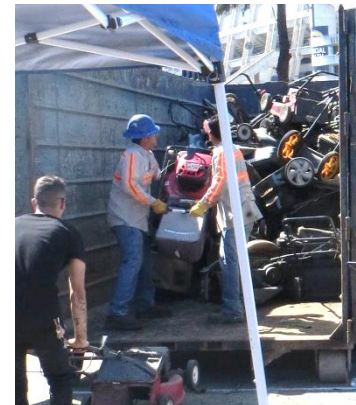


Recycling

Continued the Dos Picos Regional Park Zero Waste Program. **The park is working towards becoming a zero waste facility.** Park rangers are teaching the public that nearly all waste products can be recycled or composted while camping and picnicking at the park. **On-site recycling and composting bins are now provided for public use.** Free compost kits are also available to encourage the recycling of green waste.



Hosted the 15th Annual Mowing Down Pollution Lawnmower Event. County residents were offered an **opportunity to “go green” by turning in their old, working gasoline-powered mower** and received a discount on a new cordless, rechargeable electric mower. A total of 586 **polluting mowers were replaced with new, environmentally friendly electric mowers.** The event also eliminated around 69 metric tons of greenhouse gasses, equivalent to at least 164,000 fewer miles of driving by the average car.



PACE Financing

Joined three Property Assessed Clean Energy (PACE) programs that allow for the **financing of energy efficient projects**, water efficiency projects and **renewable energy upgrades** which can be **repaid through a property owner's property tax bill**. The County joined PACE programs that assist with both commercial and residential properties. The purpose of the program is **to help make financing available for energy efficiency improvements and/or installing solar systems** and to promote regional energy independence.



Projects Underway



The following efforts are underway and are expected to complete by June 2015:

Energy and Water Efficiency and Utilization

36



Nine projects to **modernize lighting fixtures, replace lamps and light bulbs** with an expected energy savings of one to three million kWh. Funding is provided through the SDG&E zero interest loan on-bill financing program.

Conducting **energy performance audits and on-site generation capability analyses** for select County facilities. The assessments will be done to update future Major Maintenance Improvement Plans. These analyses will also **use building modeling** to help determine if a building is a candidate for becoming a zero net energy facility.





Water Reclamation – Exploring the feasibility of installing a demonstration system at the County Operations Center that will **reduce the amount of water used for non-potable purposes** (such as supply for cooling towers and irrigation), by reclaiming and treating waste water produced at the site. **Reducing the need for potable water at the site dramatically reduces the annual utility bill, improves the availability of drinking water, and achieves energy efficiency** by reducing the amount of energy used to convey waste water to the treatment plant.



Cooling Tower Water Softener Systems – Researching the feasibility of installing water cooling tower treatment technology at the County Administration and Operation Centers. Typical results are **water reduction** in excess of 40%, **sewer discharge reduction** in excess of 90% and total **elimination of water treatment chemicals**.

Energy and Water Efficiency and Utilization

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Kearny Mesa Juvenile Detention Facility – A project to **install efficient toilet flush valves, sink aerators and shower heads** is underway that is expected to **save 3 million gallons** of water annually.

Pine Valley Park Ball Fields – A project to **convert natural turf baseball/softball/multipurpose fields to synthetic turf fields** is underway and is expected to reduce water use by over 30%.



High Performance Buildings – Operations and Maintenance. This project will **create a plan to ensure that County LEED certified facilities continue to operate to the highest sustainable standards** and prepare for the process of LEED certification of existing buildings.

Green Design and Construction for New Facilities

Future capital projects are being planned for **LEED standards** and may also **include the requirement to be Zero Net Energy buildings**:

- Assessor/Recorder/County Clerk El Cajon Facility
- Imperial Beach Library
- Borrego Springs Library
- Pine Valley Fire Station
- Crime Lab



A new contract to provide **Direct Access Energy Services** including electricity and natural gas is expected to be awarded by September 2014 and **will allow the County to continue to provide** a dependable, secure source of energy as well as **reliable and reasonable pricing** for that energy. It is expected that significant savings will continue through use of this service.



Distributed Generation Systems Deployment

41

A procurement to provide solar photovoltaic system(s) via a power purchase agreement(s). The purpose of this effort is to **diversify how the County obtains electricity to minimize the risk of increased electricity costs** and ensure dependable and reasonable pricing.



The County intends to:

- ✓ **Deploy distributed generation solar photovoltaic systems** via power purchase agreements in order to avoid the costs associated with equipment, construction, maintenance, support and electricity monitoring.
- ✓ **Maximize financial benefits** through multi-year agreements for purchase of power at rates at or below anticipated retail costs.
- ✓ Offer vendors several potential sites where the systems can be deployed and allow the vendor to **propose appropriate sized systems that will deliver the best value** to the County.

Smart Building/Smart Grid Technology Deployment

42

Selection of a vendor to **provide electric vehicle charging station equipment, management, maintenance and related services**. The charging stations are intended to be used by the public and County staff with electric vehicles and will be installed at several County parking facilities located throughout the region.



Deploying the **centralized County-networked Building Automation System** at the **County Operations Center** and additional future sites is being planned. By using this technology the County will continue to **take advantage of data analytics** and manage energy demand from a central point.

Smart Building/Smart Grid Technology Deployment

Signing up to participate in Demand Response. This program run by SDG&E **helps curtail energy demand through temporary reductions in energy load during hot days.** A Demand Response event typically lasts for 4 hours and will be controlled by the County via the Centralized Building Automation System.

GOALS

- Prevent loss of service
- Save utility costs
- Meet Climate Action Plan goals
- Comply with Title 24 regulations



BENEFITS

- ✓ Financial incentives
- ✓ Cost avoidance
- ✓ Leadership
- ✓ Ease of implementation

Monitoring and Reporting

Continuing Greenhouse Gas Emissions monitoring and reporting.



Begin using Energy Star Portfolio Manager to benchmark the performance of all County facilities over 5,000 square feet. This free online tool will help to measure and track energy use intensity as well as water consumption and greenhouse gas emissions.

Vehicle Fleet Fuel Efficiency and Utilization

45

Implementing the recently developed Green Fleet Action plan.

Vehicle replacements

Gas-fueled sedans will be replaced with hybrids, EVs, or compact cars.

Gas-fueled utility vehicles will be replaced with propane-fueled vehicles.

Gas-fueled patrol vehicles will be replaced with high efficiency gas-fueled vehicles.



Mobile maintenance

The mobile maintenance program will be expanded.



Fuel switching

Diesel-fueled utility vehicles will be replaced with biodiesel vehicles.



Vehicle pooling

Test shared vehicles at the County Operations Center using a system called "Key Valet" which will potentially reduce underutilized vehicles.





Training staff through **Building Operator Certification courses** at the SDG&E Energy Innovation Center where they will **learn about energy efficient operations and building systems**. Building Operator Certification (BOC) is a nationally-recognized training and certification program.



Submitting an application to the Institute for Local Government for the 2014 Beacon and Spotlight Awards. Awards will be presented at the Annual Conferences of the League of California Cities and the California State Association of Counties in the fall.

Pursuing a contract that will allow County staff to **recycle obsolete cell phones, batteries, chargers and other wireless accessories** through a certified, EPA-registered facility.



Waste Reduction and Recycling

Rebidding and consolidating contracts for trash and recycling services in winter 2014 with the intent to **maximize cost efficiencies and increase recycling**. The new contract will seek to provide comprehensive collection and waste resource management **services to eliminate, reduce, re-use, recycle, compost and process or dispose of specified material generated within County facilities**. The goal will be to meet the State of California landfill diversion requirements (AB341) and to save money for the County.



Continuing to **provide presentations to schools** and adult groups, **composting workshops**, community recycling events and hotline and online database services for waste, **recycling and household hazardous waste disposal options**.





Collaborating with Feeding America San Diego to create a guide **on how to reduce food waste at grocers and food facilities**. It will help business owners understand the **benefits of food donation** to their bottom line, the community, and the environment. It will explain how to implement a food donation program simply and easily while incorporating safe food handling practices.

Working on a **“Too Good To Waste”** campaign for County residents. This effort will **offer guidelines for short and long term storage, quick cooking guidelines and tips to use up leftovers**. The campaign can be adapted for web, public education presentations and brochures.



Developing a **Comprehensive Renewable Energy Plan (CREP)** to provide decision makers with an overview of **alternative consumer choice models** including **Community Choice Aggregation (CCA)** and **Direct Access purchasing**. The CREP project will examine the viability and risks associated with implementing consumer choice models and summarize the status of Community Choice Aggregation programs throughout the state.

